

WHAT IS CLAIMED IS:

- 1 1. A method of plugging a pipeline comprising the steps of:
 - 2 (a) welding onto the exterior of the pipeline first and second
3 spaced apart collars, each collar having a sealing face in a plane perpendicular
4 the pipeline axis;
 - 5 (b) affixing, by welding, a containment housing to said collars to
6 fully encompass a section of the pipeline between said collars, the containment
7 housing having an open top;
 - 8 (c) removably attaching a tapping machine to said containment
9 housing in communication with said open top;
 - 10 (d) by use of said tapping machine, cutting and removing a length
11 of the pipeline from between said collars leaving two open pipe ends;
 - 12 (e) positioning, by means of said tapping machine, first and second
13 seal elements between said collars, each seal element having on a forward face
14 a forwardly extending circumferential lip of internal diameter greater than the
15 external diameter of the pipeline; and
 - 16 (f) moving said seal elements apart from each other to force each
17 said circumferential lip into sealing engagement with a said collar sealing face
18 closing said pipe.
- 1 2. A method of plugging a pipeline according to Claim 1 wherein step (f) is
2 carried out by first moving said seal elements apart from each other by
3 linkages followed by forcing a wedge between said seal elements.

- 1 3. A method of plugging a pipeline according to Claim 1 including, after step (a)
2 of machining said sealing faces to provide an uninterrupted circumferential
3 sealing surface on each said collar.
- 1 4. A method of plugging a pipeline according to Claim 1 wherein in step (a) each
2 said collar is in the form of two halves of a toroid, two halves being fitted
3 around the pipeline to form each said collar, the halves of the collars being
4 welded to the pipeline and to each other.
- 1 5. A method of plugging a pipeline according to Claim 1 in step (b) said
2 containment housing is formed of pieces that include, as an upper part, a
3 flange having a passageway therethrough providing said open top.
- 1 6. A method of plugging a pipeline according to Claim 5 wherein one of said
2 containment housing pieces is an end cap forming a bottom part that is
3 opposite of said flange.
- 1 7. A method of plugging a pipeline according to Claim 1 wherein step (e) said
2 first and second seal elements are each connected by sets of hinges to a tubular
3 body said tubular body being longitudinally positionable on a vertical rod
4 extending from said tapping machine.
- 1 8. A method of plugging a pipeline according to Claim 7 including a platform
2 member slideably positioned on the exterior of said tubular body, said
3 platform member determining the lowermost position of said seal elements
4 and aiding to guide said seal elements into sealing positions with respect to
5 said collars sealing faces.

- 1 9. A method of plugging a pipeline according to Claim 7 wherein said tubular
2 body is downwardly sprung biased with respect to said vertical rod.
- 1 10. A method of plugging a pipeline according to Claim 2 wherein each said seal
2 element has on a rearward face a vertical slot slideably receiving an edge of
3 said wedge.
- 1 11. A method of plugging a pipeline according to Claim 1 wherein prior to the
2 performance of step (a) an alignment fixture is affixed to said collars to hold
3 said collars on the pipeline so that said sealing faces are in substantially
4 accurate parallel planes perpendicular to the tubular axis of the pipeline and
5 are spaced apart a substantially accurate predetermined distance, said
6 alignment fixture being removable after initial welding fixes said collars
7 relative to the pipeline.
- 1 12. A method according to Claim 1 including between steps (b) and (c) of affixing
2 a lower end of a valve having a closeable large bore passageway therethrough
3 in closed communication with said containment housing open top, said
4 tapping machine of step (c) being attachable to an upper end of said valve.
- 1 13. A method of plugging a pipeline according to Claim 1 wherein step (d) is
2 carried out with a circular saw of diameter greater than the diameter of the
3 pipeline.
- 1 14. An assembly for use in a system for plugging a pipeline comprising:
2 a first and a second toroidal collar each formed of a lower half semi-
3 toroidal portion and a detachable mating upper half semi-toroidal portion, the

4 portions when assembled having an internal circumferential surface of
5 diameter substantially equal to the external diameter of the pipeline, each
6 collar having on its inward face a planar sealing surface and a rearward
7 surface; and

8 an alignment fixture having paralleled end plates spaced apart a
9 substantially accurate predetermined distance, the end plates adapted for
10 removable attachment to said rearward surfaces of said lower half semi-
11 toroidal collar portions whereby said inner planar sealing surfaces are
12 accurately supported in paralleled and spaced apart positions and whereby said
13 alignment fixture with said lower half semi-toroidal portion of each said collar
14 may be positioned in contact with the pipeline and thereby ready to receive
15 said upper half semi-toroidal portions.

1 15. An assembly for use in a system for plugging a pipeline according to Claim 14
2 wherein said alignment fixture includes a plurality of equal length rods
3 extending between and secured to said paralleled end plates serving to
4 maintain said end plates at said substantially accurate predetermined distance.

1 16. Apparatus for use in a system for plugging a pipeline comprising:
2 a first and second toroidal collar each formed of a lower half semi-
3 toroidal portion and a detachable mating upper half semi-toroidal portion, the
4 portions when assembled having an internal circumferential surface of
5 diameter substantially equal to the external diameter of the pipeline, each
6 collar having on a forward face a planar sealing surface, said collars adaptable
7 for fixation to the exterior of a pipeline and for receiving seal elements having
8 circumferential sealing lip pressed against said planar sealing surfaces.